

Rural-Urban Migration in China – What Do We Know and What Do We Need to Know?*

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Abstract

This paper reviews economic studies on rural-urban migration issues in China. The review focuses on three issues: firstly, the explanations for the rural to urban migration, secondly, the interaction between migration and labor market evolution, with special attention to labor market segregation, labor market flexibility and wage differentials, and lastly suggestions for further research topics.

Keywords: Migration, Labor Market, Segregation, Mobility
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I. Introduction

Since China started its economic reform in 1978, rural to urban migration became a particularly important social phenomenon and has attracted much attention from both policy circles and academics. The growing literature includes government sponsored research reports, e.g. Zhang and Zhou (1999), as well as seminar proceedings, e.g. MOLSS (2000); book length treatments from sociologists, e.g. CASS (2000); contributions from demographers, such as Li, Chen and Bao (1999), and of course research by economists, e.g. West and Zhao (2000).

The study of migration is not new in economics. The dominant approach in the 1970s was the Todaro (1969) model and its extension, Harris-Todaro (1970) two-sector model, which recognized the persistent wage differential between urban and rural sector. In this model an individual will make his/her migration decision based on the expected urban-rural earning difference. The prediction from Harris-Todaro model is challenged by empirical evidence, and economists realized the importance of household in the migration decision process, see Nabi (1984) and Rosenzweig and Stark (1989). For theories on migration and empirical results from a global perspective, please refer to the excellent survey of Williamson (1988). The unique Household Registration (Hukou) System of China distinguishes Chinese migration from migration in other developing countries.

This paper focuses on a very narrow theme and will review major contributions by economists on migration in China, especially rural to urban migration and related issues, where a substantial economic research literature has

accumulated. I concentrate on rural to urban migration because it is the most important form in China (followed by urban to urban and rural to rural migration) and because the empirical research on other forms of migration in China is still limited.¹ I should point out that due to the space constraint, this paper cannot cover all the research in this area.

The paper is organized as follows. Section II will provide a brief history on the institutional arrangements on Chinese urban-rural segregation, and will discuss the household registration (Hukou) system. This section will also illustrate the evolution and changes of rural to urban migration policy since 1978.

Section III will document migration trends, and review current literature on the explanations of the migration. Both consensus and disputes on the causes of migration will be highlighted. Data issues and related econometric techniques will also be discussed.

Section IV will survey the research on the interaction of migration and labor market evolution. Empirical findings on labor market segregation and flexibility will be summarized. This section will also discuss the estimates of wage equations and wage differentials in the literature.

Section V will provide some comments and thoughts on further research issues and conclude the paper.

II. The Origin and Evolution of Rural-Urban Segregation and Migration

The current Hukou system in China originated in 1951, and it was not intended to control the mobility of the people. Even in 1955 when the government

¹ Few exceptions include Cai, Du and Wang (2001) on planned migration sponsored by government, and Ma (2000) and Yao (2001a) on rural to rural migration.

established the permanent Hukou registration system, the change of residence was only necessary for landlords and paroled criminals (Zhao, 2000). It is a common view that the government started to intensify the Hukou system and strictly restrict the mobility of the population, including rural to urban migration, in the 1960s, following the collapse of the Great Leap Forward and the devastating famine which was responsible for at least 30 millions deaths. The main cited reason for this government action is the shortage of food, e.g. Wu (1994) and Zhao (2000). But if the farmers were considered by the government as an important resource to facilitate its distorted macro policy (i.e. to develop heavy industries first) as argued in Lin (1994), the fate of Chinese farmers was set regardless whether there was enough food or not, since the government needed to tie the farmers to the land to provide cheap agricultural products to the industrial sector. In this sense, the segregation of rural and urban population has more profound reasons than food shortage.

The methods of controlling the rural to urban migration were comprehensive. The People's Commune system and Hukou system were two main tools for this purpose. Through the People's Commune system, the earnings of farmers depended on their daily participation in the collective farming, i.e. each farmer became a member of a collective production-team, and the opportunity cost of migration was very high. Through the Hukou system, the government allocated housing and jobs, rationed food and other necessities, and these linkages made it almost impossible for people without local Hukou to live in urban areas, see Zhao (1999) and Cai (2001).

These methods were very effective. From 1949 to 1985, the average migration rate for China was only 0.24,² compared with world average of 1.84 from 1950 to 1990, see Zhao (2000). In the same paper, Zhao points out there were basically three routes for rural to urban migration before the reform. One was to unite with close relatives, such as spouse or parents, the second was to wait for urban recruitment, and the last was to be admitted to a university or be promoted in the army. Nonetheless, migration through these three routes was extremely difficult.

The Hukou system severely hindered the urbanization process in China. According to the study of Wu (1994), the Chinese urbanization level was 11.7% in 1949, and increased to 19.3% in 1960. A large portion of this increase was due to the labor demand in urban areas for the Great Leap Forward. However, the urbanization level decreased through the 1960s, and maintained a relatively stable level around 14.5% until 1978. The decrease in the 1960s was the result of the strict enforcement of the Hukou system. Two events also played a role in the reduction of the urbanization level. One was sending more than 20 million rural people, who were previous recruited by the urban sectors, back to the countryside after the great famine (Zhao, 2000). The other was sending students to the countryside during the Cultural Revolution, but its significance has not been well studied yet.

It is worth noting that the Hukou system not only made rural to urban migration almost impossible, but also severely restricted urban to urban, rural to

²It was defined as the net rural to urban migration over the rural population in the base year.

rural and urban to rural migrations. It deprived both rural and urban residents of their freedom of mobility.³

China started its economic reform in 1978. The Household Responsibility System (HRS) emerged and eventually replaced the collective production-team system. The HRS returned some degree of personal freedom to the rural people (Zhao, 1999a), and increased the productivity. The HRS contributed nearly half of the total agricultural output growth during 1978-1984 (which equaled 42.23%), see Lin (1992). The increase of productivity led to the availability of food in the urban free market, and eventually put an end to the food rationing (Zhao, 1999a); it also generated surplus labor in rural areas. All of these factors made the migration from rural to urban possible.

In the urban areas, the creation and development of the special economic zones, the expansion of the non-state sector and the loosening of the urban employment policy created the demand for migrants (Meng and Zhang 2001, and Cai, 2001). The shift of the development strategy from capital intensive industries towards more labor-intensive industries has also created more jobs in the urban areas.

Since the mid and late 1980s, rural to urban migration became a constant social phenomenon. The exact number is disputable (see, e.g. Rozelle, et al, 1999), but numbers cited in Zhao and Sicular (2002) indicate that the quantity of rural to urban migration doubled between late 1980s and mid 1990s, where in 1989 the migrants were 8.9 millions and in 1994 increased to 23.0 millions, see Table 1.

³ The People's Commune system and the state ownership of the land made the rural to rural migration almost impossible; the linkage of food rationing, housing allocation, job slot, and etc to the local Hukou prevented the mobility from city to city.

The research of Wang (2000) on the inter-regional migration also confirms this, see Table 2.

Despite all these changes, the basics of the Hukou system remained intact until recently. Some provinces and cities are starting to reform the Hukou system, though official restrictions on migration still exist. The State Council promulgated Regulation on Taking the Urban Homeless and Beggars into Custody and Deportation in 1982,⁴ and almost all major cities in China formulated their own regulations after that, and often extended the coverage from Homeless and Beggars to the ‘three-no migrants’.⁵ The migrants are routinely harassed and abused by the police and other authorities in the name of these regulations. Even from the tightly controlled Chinese news media, it is not uncommon to read news reports on the deaths caused by police abuse.⁶

Huang and Pieke (2003) and Song (undated) divide the migration policy evolution into 4 periods after 1979. The first period is from 1979 to 1983, and in this period, government still prohibited migration. The second period is from 1984 to 1988, and government started to allow farmers to enter the urban areas on the condition that they provided food by themselves. The third period is from 1989 to 1991. Before mid 1980s, migration was not a significant social phenomenon yet, and had not attracted much attention from the government. The term “*rural migrant wave*” was coined in 1989 to describe the enormous number of rural migrant travelers during the Chinese New Year period in 1989. After the

⁴ This regulation will be abolished on August 1, 2003.

⁵ One explanation for the three-no is no legal identification, no fixed resident place and no legal source of income; another explanation is no identification, no temporary resident permit and no employment certificate

⁶ The death of Mr. Zhigang Sun is the most infamous case, and this case directly caused the abolition of the above mentioned regulation.

“rural migrant wave” in 1989, the government felt the need to interfere and restrict the migration. The fourth period is from 1992 to 2000. During this period, the central government in some degree encouraged the rural-urban migration, but since 1994, a lot of major cities tightened their control on the migration because of the layoff and unemployment problem in the urban areas. Since 2000, the government is reforming the Hukou system and allows more mobility of the people. The abolition of the Regulation on Taking the Urban Homeless and Beggars into Custody and Deportation is a major victory of the public, especially the migrants.

Using Beijing as an example, Cai, Du and Wang (2001) illustrate the existence and evolution of the institutional barriers for rural to urban migration. The changes in policy reflect the macro environment of Beijing at the time of the change. As shown in Table 3, the migration policy of Beijing can be divided into three periods after 1989. From 1989 to 1991, the Beijing government tried to regulate the migrants, which was often portrait as *Blind Flow*, after the “rural migrant wave” in 1989. During 1992-1994, the government in some degree encouraged the rural to urban migration. The partial reason for this loosely control was due to the high growth rate of economy and huge demand for labor force in urban areas. Since 1995 layoff workers became a social issue in urban areas. The Beijing government tightened the control on migrants again, and hoped to leave more job opportunities to urban residents. Most cities experienced similar stages of migration policy changes as Beijing.

Besides the official discrimination policies, the urban public also hostile to the migrants, and do not want to share its higher living standards with rural people (Zhao, 1999a). The news media often unfairly “associate migrants with overcrowding, chaos, crime, violence, high fertility, and illicit sex” (Davin, 2000). The integration of rural-urban labor market still has a long way to go.

III. The Causes of Rural to Urban Migration

The driving forces of rural to urban migration are commonly characterized by *push* and *pull* factors. The surplus rural labor is often viewed as the main push factor.

In the 1950s, development economists viewed demand for labor created by “growing modern industrial complex” as the main pull factor (Williamson, 1988). But statistical data collected from the developing countries on the unemployment rate and underemployment problem rejected this paradigm. Todaro (1969) and Harris and Todaro (1970) admit the chronic unemployment problem in urban areas and instead suggest the expected wage gap between rural and urban areas is the pull factor. The significance of rural-urban income gap in China is obvious from Table 4. The per capita income in the urban areas was 3.09 times of in the rural areas (NBSRG, 1994), or 2.50 times of in the rural areas (Johnson, 2002), where NBSRG (1994) includes non-cash income for the urban people. The gap was narrowed through early 1980s and reached the smallest in 1985, and the ratio of urban income to rural income from NBSRG (1994) was 2.26, and from Johnson (2002) was 1.86. The gap is widening again since then. Yang and Zhou (1997) study the V-shaped income gap. They conclude that the

earlier start of the rural reform narrows the gap during 1978-1985, and the widened gap since 1985 has been primarily caused by the governmental financial transfer program in favor of the urban sector. Migration is not only driven by the huge rural-urban income gap, but also driven by regional income gap. As shown in Table 2, almost all migrants flow from lower income western region and middle region to high income eastern region.

Besides the push and pull factors, the effects of other personal and household characteristics, such as age, gender, education level, family size, and etc, are always the interests of economists and are carefully examined in the literature.

Table 5 summarizes selected research on the determinations of rural to urban migration. The analyzed key variables include age, gender, education, marital status, per capita land allocation, per capita production assets, urban-rural income gap, and etc. Most of the studies are at the individual level, and a few of them are at the household level. Besides traditional issues, the effects of risk (Jalan and Ravallion, 2000) and migrant network (Zhao, 2001) are also examined. Except for Cai (1996), the data sets used are not national level data, but are sampled from one or several provinces (counties). Binary choice and multinomial choice models are commonly used in the research, though economists also apply other econometric techniques, such as duration analysis (Hare, 1999), quantile regression (Jalan and Ravallion, 2000) and tobit model (Yao, 2001b).

Different scholars use different methods to investigate the effect of surplus labor on rural to urban migration. Using 1990 census, Cai (1996) finds that the

ratio of local rural population percentage to the national rural population percentage, the ratio of local per capita land to national per capita land, and the ratio of the local percentage of farmers employed by TVEs to the national percentage all have a positive effect on the migration. Per capita (or per household) land allocation is often used as a proxy for the surplus labor. Zhao (1997a, 1999a and 1999b) and Zhu (2002) find land size has significant negative effect on the migration decision. Additional *mu* (a measure unit in China) of land reduces the probability of migration by 4.4% if the decision model is individual-based (Zhao, 1999a) and by 2.8% if the decision model is household-based (Zhao, 1999b). While Hare (1999) finds that the land size has no significant effect on the migration decision at the household level, but he finds additional *mu* of land reduces the migration *spell* by 27%.

Zhu (2002) models the impact of income gap on migration and finds it is the most important positive factor. Cai (1996) studies the ratio of local rural income to the average national rural income, and finds increase of the ratio will reduces migration. At household level, Hare (1999) finds no significant effect of per capita production assets, and a 100 RMB Yuan increase in per capita assets increases the migration *spell* 2%. These findings are consistent with Harris-Todaro two-sector model. Nonetheless, the question of the impact of the V-shaped rural-urban income gap on the trend of migration remains unanswered, and there is too little empirical research on the effect of the income gap to the migration decision to draw reliable conclusion.

The relations between age and the probability of migration are inverted U-shaped (Zhu, 2002). Hare (1999) finds that the age groups of 16-25 and 26-35 are most likely to migrate. Zhao (1999a) finds the probability of migration decreases with age, and she explains this maybe due to the higher psychological cost for migration associated with older people (Zhao, 1997a). In the literature, the explanation for the negative effect of age is mainly that the benefit period for the older migrants is shorter (Zhao, 1999a), but most of Chinese rural migrants are temporal migrants, and it is hard to see the relevance of this explanation to China. However, Zhao (1997b) finds a positive effect of age on the migration decision, and rationalizes her finding on the ground of severe restrictions on the migration choice of young people and conjectures that young people have little chance to migrate despite their willingness.

The findings on the role of education are mixed. Zhao finds surprising small effect of formal education on migration but significant positive effect on shift from farm work to non-farm work (Zhao, 1999a), and most educated rural people prefer local non-farm work to migratory work (Zhao, 1997a). Hare (1999) finds no significant effect of formal education on the probability of migration. In a household level model, Zhao (1999b) finds that household mean education level of laborers has significant negative effect on the migration decision. Zhu (2002) finds that education only plays a positive role for males, but not for females. There are two possible explanations for these mixed findings. One is that the estimates from binary choice model (with migration and non-migration two choices) and trinomial choice model (with farm work, non-farm work and

migratory work three choices) are difficult to compare. The multinomial logit approach in Zhao (1997a and 199a) is more sensible since farm work and non-farm work are very different. Pooling these two choices together will blur the true effect of certain variables. Another explanation is that education has different effect for males and for females (Zhu, 2002). It will be useful to do separate estimations for each gender group.

Gender is one of the most important variables to determine the migration decision. Females are much less likely to migrate than males. Zhao (1997a) finds that being female reduces the probability of migration by 7%, Hare (1999) finds that being male increases the probability of migration by 30%, and Zhao (1999a) finds females are 55.3% less likely to migrate. These results maybe reflects the labor demand in urban areas which are mainly manual labors. Marital status is another important factor in the decision of migration. Marital status reduces the probability of migration from 2.8% (Zhao, 1997a) to 10% (Hare, 1999). Zhao (1999a) states married people is 37.6% less likely to migrate compared to average. Zhu (2002) also finds significant negative effect. The leading explanation for this finding is the high migration cost (both cash cost and physic cost) associated with married people.

Other aspects of migration decision are also examined by economists. Jalan and Ravallion (2000) find significant negative effect of income risk on the migration decision, but no significant effect from yield risk and medical risk. Zhao (2001) finds that migration network has positive effect on the probability of migration.

Most of the research on the determination of migration is done by modeling discrete choice. Hare (1999) and Yao (2001b) are two exceptions. Using duration analysis, Hare (1999) studies the spell of migration. Her main findings are each additional *mu* of land size reduces the spell by 27%, per capita production assets have a negative effect; both household female worker ratio and household male worker ratio have positive effect. One interesting finding of her study is that personal characteristics are more important in the decision of migration, but household variables are more important in determination of the migration spell length. The relation between the characteristics of the person and of the household and exit probability is also interesting topic. Unfortunately the author has not done any estimation on this.

Yao (2001b) also studies length of migration and his concern is on the relationship between land distribution and migration. Instead of using duration analysis, he applies a tobit model in his paper. So the economic explanations of estimates in Yao (2001b) differ from Hare (1999) and they are not comparable. The main result of his paper is that egalitarian land distribution promotes labor migration. The author has not provided a McDonald-Moffitt (1980) decomposition for his tobit result, and hence it is impossible to evaluate the intensive contribution (participation in migration) and extensive contribution (duration of the migration) of land distribution to migration, which are usually relevant to policy analysis.

Overall, the economists agree that surplus labor in rural areas and rural-urban income gap are the driving forces behind rural to urban migration in China.

Age, gender, and marital status are important variables in the decision on migration. The findings on education are mixed. Other issues, such as the effects of risk and migration network are also investigated.

Nonetheless, direct studies on the role of rural surplus labor and rural-urban income gap in the determination of the migration are still too few. We even do not know how large the rural surplus labor is. The data on migration are still spotty (Sicular and Zhao, 2002). Almost all data used in the above research are regional data, which may limit the external validity of these estimations.

IV. Labor Market Segregation and Wage Differentials

Despite more than 20 years of economic reform, the labor market in China is still segregated. One of the most important forms of segregation is rural-urban labor market segregation. Though the number of rural to urban migrants is increasing every year, considerable institutional barriers still exist, see Cai (2001).

Furthermore, segregation also exists within the urban labor market, such as the segregation between formal and informal sectors as well as in the rural labor market. The degree of segregation differs from region to region. A series of field studies by CCER (1998a, 1998b, 1998c) find the labor market in Sichuan province to be relatively integrated and Guangdong province to be segregated and claim that the old rural-area urban-area dualism is replaced by new rural-migratory-worker urban-resident-worker dualism within the urban area of Shanghai.

Table 6 summarizes selected studies on labor market segregation, earning determination and wage differentials. In this section, I examine issues of labor

market segregation in urban as well as in rural areas, wage determination, and wage differentials.

Yang and Zhou (1999) find that the labor productivity in urban area is substantially higher than in rural area, and suggest that there are barriers for the labor mobility across sectors. The sectoral marginal productivities of labor are 9346, 1211 and 601 Yuan per person for state industrial, rural industrial and agriculture, respectively in 1992. The authors identify the urban welfare systems and rural land arrangements as the main institutional barriers. High costs of child care and schooling also hinder rural families migrating to the urban areas. Zhao (1999a) also regards housing costs in urban areas as an important barrier.⁷ These existing barriers increase the migration cost, and reduce number of permanent migrants. In fact, majority of migrants are temporary migrants.

The rural people who successfully overcome the migratory barriers, immediately face discriminatory treatment and even social exclusions (Yao, 2001a), which are far more difficult to conquer. The exclusion is comprehensive and striking. The migrants are geographically segregated, politically ignored and financially discriminated, see Yao (2001a). The well-known “Zhejiang Village” formed by migrants in Beijing provides additional evidence.

Meng and Zhang (2001) find that educated urban residents are more likely to have a white-collar job or work in wholesale or retail trade occupation; for rural migrants, education increases their probability of getting a white-collar job but reduces their chance to become a wholesale or retail trade worker. For the

⁷ The monthly rent of an one-bedroom apartment in Beijing is around 1000 Yuan, and the average monthly wage for migrant is 533 Yuan (Zhao 1999).

occupational composition, only 1% of migrants hold managerial and technical positions, compared with 19% of non-migrants managerial and technical positions see Knight, Song and Jia (1999). A migrant is 17.6% less likely to have a white-collar job than a local resident (Yao, 2001a), controlling for personal characteristics.

Meng (2001) studies the migration population alone, and find that among migrants, individuals with higher labor market quality, such as more educated, more trained, having more city work experience, are more likely to be self-employed in the informal sector. Formal sector and wage-earned informal sector attract different people but it is hard to identify which group has the higher quality.

For wage functions, Meng and Zhang (2001) find that the rate of return to education is around 1% higher for rural migrants than for urban residents, job training is important for urban residents but not for rural migrants, and marital status is positively related to rural migrants earnings but not to the urban residents'. Among the 50% of the migrant non-migrant earning gap, a large portion of it is likely to be due to discrimination. But Yao (2001a) finds that among the 135% wage gap between locals and migrants, observed variables (types of firms, villages and characteristics of the worker) can explain most of them. For a local worker, the most important wage attributes are marital status and political affiliation, and for a migrant are age, education and years in current job. The different findings on the explanations of income gap of Meng & Zhang and Yao can possibly be reconciled under the Hedonic Model of Rosen (1974), which considers earnings to reflect both the characteristics of workers and of the

jobs. Meng and Zhang (2001) control only personal characteristics and Yao (2001) controls both.

Besides migrant/non-migrant wage differentials, there also exist sectoral wage differentials in China. Gordon and Li (1999) give a theoretical analysis the sector wage differentials, and they predict the government will be forced to reduce the wage distortion in the state sector due to the inter-sector labor migration. Dong and Bowles (2002) provide some empirical evidence to support this argument, and they find that the rate of return to education among four ownership categories (state-owned enterprises, township and village enterprises, joint ventures and foreign-invested firms) has converged. This is no surprising since the mobility of the factor between different sectors will equalize the prices of the factor in different sectors.

The sectoral wage differentials are also found within the migration population. Education is not important for migrants in the formal sector, but is important for other two sectors; rural work experience has significant positive effect on migrant wages in the formal sector and wage-earned informal sector, but only city experience matters to self-employed migrants in the informal sector; pre-migration training is important for all three; in self-employed informal sector, neither gender nor marital status is an important factor (Meng 2001).

Yao (1999b) studies the labor market in rural area and concludes that the rural labor market is not competitive and is segregated, and cited the limited role of human capital in the wage determination as the supporting evidence. Zhao (1999a) finds the marginal productivity is quite different among farm work, non-

farm work and migratory work. According to Zhao (1999a), shifting one worker from farm to migratory work increases family income by 49.1%, shifting one worker from farm to local non-farm work increases family income by 13.0% and adding one farm worker increases the family income by 9.0%. As Yao (1999b), Zhao (1999a) also finds that schooling has very small effect on earnings.

The main consensus of economists is that the labor market in China is still segregated. There are different kinds of segregations: segregation of urban-rural labor market, segregation within the urban and rural labor market, segregation between migrant and non-migrant and segregation within the migration population.

V. Further Research Issues and Conclusions

Zhu (2002) has three criticisms on the research on Chinese migration. The first is that most research remains qualitative, and the second is that available data sets are not suitable for migration research, and the third is that studies focus on the migrant and non-migrant income gap and ignore the dynamic interaction of income and labor mobility.

With regards to the first point, it can be seen from the reviewed papers in this article, that there is a fair amount of studies employing advanced econometric technique. For the literature in Chinese, Zhu's point still holds, but for the literature in English, it is no longer the case.

I share Zhu's concern with the quality of the data sets. There are two issues. One is that most of the surveys, especially national surveys, are not suitable for migration research, and this is also true for the most recent Chinese

2000 census. The other is as I mentioned in Section III, that most of the research is done by using regional data. This creates two problems due to the vast regional differences in China: one is the external validity and the other is the comparability of these studies. The data problem is not only due to the poor design of the questionnaires, but also due to the difficulties of drawing a national representative migrant sample and a comparison non-migrant sample, let alone to trace the observations over time.

As the Chinese government is currently reforming the Hukou system it is now a good time to design a survey to study the impacts of Hukou system.

With regards to the third point raised by Zhu, I agree with the importance of the dynamic interaction between income and labor mobility. From a macro level perspective, I think it is interesting to investigate the impact of V-shaped urban-rural income gap on the migration. But given the data available now, it is difficult to do empirical studies on these dynamics. Several studies in Table 5 explore the static relationship between income and migration.

In addition to the interaction between income and migration, I think the following issues are also important and interesting.

First, the dynamics between migration and labor market evolution is an important topic. One example of this kind of dynamics is the interaction among migration on the urban unemployment, job creation and wage structure.

Second are the effects of migration on family structures of the migrants, and on the wellbeing of the children of the migrants. It has been almost 20 years

since the first wave of rural migration, and the time span is long enough to study this kind of long-term effects.

Third are comparison studies on the economic and social behaviors of permanent migrants and temporal migrants. On the one hand, the press often blames social problems to the temporal or *floating* nature of rural migration population; on the other hand, the government and urban public do little to help the migrants to settle down permanently. The results from such a study would have very strong policy implications.

Fourth are the impacts of migration on the source communities. There are several studies about this. Taylor, Rozelle and de Brauw (2002) study the effects of migration on income in sources communities, Zhao (2002) studies the behaviors of return migrants, and Bai (2000) studies the effects of migration on agriculture. However, there are still too few studies on these issues.

Studying the impacts of the migration restriction on Chinese economy, such as Au and Henderson (2002) on relationship between migration restrictions and agglomeration and productivity, is also a fruitful field with too few studies.

Through previous studies, we understand a lot of issues surrounding the rural to urban migrations, but there are even more issues that we want to know and desire further study.

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Table 1. Rural Population, Labor Force and Rural-Urban Migration in China (in thousands)

Year	Rural Population	Percentage of Rural Population	Rural Labor Force	Employed by TVEs	Rural Migrants
1978	790140	82.08	306380	28270	
1980	795650	80.61	318357	30000	
1985	807570	76.29	370651	69790	
1989					8875
1990	841380	73.59	420095	92650	
1991	846200	73.06	430925	96090	
1992	849960	72.54	438016	106250	13785
1993	853440	72.01	442557	123450	
1994	856810	71.49	446541	120170	22961
1995	859470	70.96	450418	128620	24488
1996	850850	69.52	452880	135080	25190
1997	841770	68.09	459617	130500	24763
1998	831530	66.65	464323	125370	26666
1999	820380	65.22	468965	127040	
2000	808370	63.78	479621	128200	
2001	795630	62.34	482289	130860	

Source: National Bureau of Statistics of China (2002), Table 4-1, Table 5-4, Table 12-3, and Sicular and Zhao (2002), Table 2.3.

Table 2. Inter-Region Migration in China, 1982-1995 (in thousands)

	1982-1987			1985-1990			1995-2000		
	Eastern Region	Middle Region	Western Region	Eastern Region	Middle Region	Western Region	Eastern Region	Middle Region	Western Region
Eastern Region	–	–	–	–	–	–	–	–	–
Middle Region	735*	–	–	1089.4	–	–	2499.3	33.8	–
Western Region	379.2	60.5	–	843.7	222.6	–	1194.8	–	–

Source: Wang (2000), Table 1.

*The figure, e.g. 735, means the number of migrants from Middle Region to Eastern Region is 735 thousands.

Table 3. Discrimination Policies on Rural-Urban Migration – the Case of Beijing, China

Period	Quantity Control	Registration and Fee Policy	Application and Approval Procedure	Restricted Sector
Formulating Regulation Policy Period (1989-1991)	Temporary worker must have the local Hukou; aim to reduce the rural migrants by 200,000-250,000; tightly Control the recruitment of rural migrants.	The employer must apply for the temporary resident permit and working permit for their non-local employees.		
Loosely Controlled Period (1992-1994)		Stop to collect the management fee from the baby-sitters who are from outside Beijing.	Formalize the labor contract for the non-local workers; give more power to the lower level authority to approve the recruitment of rural migrants from local rural areas; give partial power to the employers to recruit non-local workers.	
Strictly Controlled Period (1995-2000)	Tightly control the recruitment of non-local worker within the sectors with a large number of layoff workers (Xia-Gang); not permit to recruit non-local workers if the company has laid off 10% of its work force; set the ratio and formulate the rules on the recruitment of non-local workers and layoff worker; put a total quota on the non-local workers.	The non-local workers must apply for temporal resident permit, working permit for non-local workers. The non-local worker must have employment certificate. Formalize the application procedure for working permit There are three different kinds of temporal resident permit	Formalized the control procedure for the non-local workers; take three-no* migrants into custody and send them back to their hometown. Strictly control the recruitment of non-local workers for certain sectors.	In 1996, there are recruitment restrictions on 16 sectors; in 1997, 32 sectors; in 1998, 34 sectors; In 1997, there is also regulation that forbids to hire non-local workers in the service sector. In 1999, the restriction list includes 8 sectors and 103 occupations.

Sources: Reproduced from Cai, Du and Wang (2001), Table 4.

*Three-no: one explanation for the three-no is no legal identification, no fixed resident place and no legal source of income; another explanation is no identification, no temporary resident permit and no employment certificate.

Table 4. Ratio of Urban Income to Rural Income

	National Bureau of Statistics Research Group (1994)*	Johnson (2002)**
1978		2.57
1979		2.42
1980	3.09	2.50
1981	3.02	2.24
1982	2.74	1.98
1983	2.44	1.85
1984	2.39	1.86
1985	2.26	1.86
1986	2.60	2.12
1987	2.64	2.17
1988	2.49	2.17
1989	2.73	2.29
1990	2.84	2.20
1991	2.92	2.40
1992	3.05	2.58
1993	3.27	2.80
1994		2.86
1995		2.71
1996		2.51
1997		2.47
1998		2.51
1999		2.65
2000		2.79

*From National Bureau of Statistics Research Group (NBSRG) (1994), Table 2;

**From Johnson (2002), Table 2.

Table 5. Research on the Determination of Rural-Urban Migration in China

Study	Dependent Variable(s)	Key Independent Variables	Results on Key Variables	Data Set(s) and Econometric method
Cai (1996)	The ratios of migrants to non-migrants at rural areas	Ratio of local rural income to the average national rural income; ratio of local rural population percentage to the national rural population percentage; ratio of local per capita land to national per capita land; ratio of percentage of farmers employed by TVEs at local to the national percentage	Increase of income reduces migration; the ratio of rural population has a positive effect on the migration; per capita land allocation has a positive effect; percentage of farmer employed TVEs also has a positive effect.	1990 census OLS
Zhao (1997a)	Discrete Variable: local agricultural job, local non-agricultural job, migration	Gender, marital status, age, no. of pre-elementary school children, per capita land allocation, education level	Female reduces probability of migration by 7%; marriage reduces migration probability by 2.8%; education increases migration, but has even bigger positive effect on taking non-agricultural job; per capita land allocation has negative impact on migration	Data was collected jointly by Rural Development Research Center, Ministry of Agriculture and Statistical Bureau of Sichuan Province in Sichuan Province in 1996. Multinomial logit
Hare (1999)	Out migration status	Age, gender, marital status, education level, per capita production assets, per capita land allocation, household of female worker ratio, household of male worker ratio	Male increases the probability of migration by 30%; younger individuals are more likely to immigrate; marriage lowers the probability by 10%; the effect of education is not significant, nor the per capita production assets and land allocation.	Data was collected by the author and Zhao Shukai in Xiayi county of Henan 1995. Probit
Hare (1999)	Spell of migration	Gender, per capita production assets, per capita land allocation, household female worker ratio, household male worker ratio	Each additional mu of land allocation reduces the spell by 27%; per capita production assets have a negative effect; both household female worker ratio and male worker ratio have positive effect.	Data was collected by the author and Zhao Shukai in Xiayi county of Henan province in 1995. Duration Analysis

Table 5. Research on the Determination of Rural-Urban Migration in China (Cont.)

Study	Dependent Variable(s)	Key Independent Variables	Results on Key Variables	Data Set(s) and Econometric method
Zhao (1999a)	Migration status	Gender, marital status, age, age squared, per capita land allocation, and education level	Female is 55.3%, and married people is 37.6% less likely to migrate compared to average; migrants tend to be younger, male and unmarried; land size has a negative effect; education has a positive effect on male migrants.	Surveys in Sichuan province in 1995 and 1996 Logit
Zhao (1999b)	Migration status	Household mean age, mean schooling, no. of laborers, household land size,	Mean age has a negative effect, so does mean schooling and land size; no. of laborers has a positive effect.	Surveys in Sichuan province in 1994 and 1995 Logit
Jalan and Ravallion (2000)	Proportion of adult household members working out of the township	Income risk, yield risk, medical risk	Significant negative effect of income risk on migration, no effect of farm yield risk and small positive effect of medical risk.	Panel data, from 1885-1990, Rural Household Survey in Guangdong province, by National Bureau of Statistics Quantile regression
Zhao (2001)	Migration status	No. of experienced migrants, no. of return migrants, gender, marital status, age, and education level	No. of experienced migrants and no. of return migrants, which capture the migrant network, have positive effect on the probability of migration;	Survey on six provinces, Zhejiang, Anhui, Hunan, hebei, Shannxi and Sichuan, by Rural Development Research Center, Ministry of Agriculture in 1999. Logit
Zhu (2002)	Migration status	Age, age squared, education level, per household land allocation, marital status, urban-rural income gap	Age has a positive but age squared has a negative effect; education only plays a positive role for male, but not for female; marriage reduces the probability of migration significantly; income gap is important; per household land has negative effect.	Survey by the author in Hubei province in 1993. Switching regression Structural probit

Table 6. Selected Studies on Labor Market Segregation, Earning Determination and Wage Differentials

Study	Issue(s)	Main results	Data Set(s) and Econometric method
Zhao (1999a)	Household earning in rural area	Shifting one worker from farm to migratory work increases family income by 49.1%; shifting one worker from farm to local non-farm work increases family income by 13.0%; adding one farm worker increases the family income by 9.0%; schooling has very small effect on earnings	Surveys in Sichuan province in 1995 and 1996 OLS
Yao (2001a)	Wage determination of migrants and locals	Among the 135% wage gap between locals and migrants, observed variables can explain most of them, but for a local worker, the most important wage attributes are marital status and political affiliation, and for a migrant are age, education and years in current job.	Surveys on four villages in four different provinces in China. OLS
Meng and Zhang (2001)	Occupation attainment for rural migrant and urban residents Four categories: white-collar workers, wholesale & retail trade workers, service workers, and production & other workers.	Educated urban residents are more likely to have a white-collar job or work in wholesale or retail trade occupation; for rural migrants, education increases their probability of getting a white-collar job but reduces their chance to become a wholesale or retail trade worker; family structure is not important for the occupation attainment of urban residents, but important for rural migrant.	Shanghai Floating Population Survey and Shanghai Residents and Floating Population Survey conducted by Institute of Population Studies at Shanghai Academy of Social Sciences in 1995 and 1996. Multinomial logit
Meng and Zhang (2001)	Earning differentials between urban residents and rural migrants	Return of education is higher for rural migrants than for urban residents; job training is important for urban residents but not for rural migrants; marital status is positively related to rural migrants earnings but not to the urban residents'; A large portion of the earnings gap is due to within-occupational unexplained factors, and is likely to be due to discrimination.	Shanghai Floating Population Survey and Shanghai Residents and Floating Population Survey conducted by Institute of Population Studies at Shanghai Academy of Social Sciences in 1995 and 1996. OLS

Table 6. Selected Studies on Labor Market Segregation, Earning Determination and Wage Differentials (Cont.)

Study	Issue(s)	Main results	Data Set(s) and Econometric method
Meng (2001)	Job attainment for migrants Three categories: formal sector, wage-earned in informal sector, and self-employed in formal sector	Individuals with higher labor market quality, such as more educated, more trained, having more city work experience, are more likely to be self-employed in the informal sector. Formal sector and wage-earned informal sector attract different people but it is hard to identify which group has the higher quality.	Survey conducted in Jinan, Shangdong province in 1995, Multinomial logit
Meng (2001)	Wage differentials among formal sector, wage-earned in informal sector, and self-employed in formal sector	Education is not important for formal sector, but is important for other two sectors; rural work experience has significant positive effect on wages of formal sector and wage-earned informal sector, but only city experience matters to self-employed informal sector; training is important for all three; in self-employed informal sector, neither gender nor marital status is an important factor. Observed endowment can only explain a small portion of the differentials.	Survey conducted in Jinan, Shangdong province in 1995, Heckman two-step model
Zhu (2002)	Migrant and rural non-migrant income functions	Age has an inverted U effect on income; education has positive effect for male migrants but not for female migrants, and has greater effect for non-migrants than for migrants.	Survey by the author in Hubei province in 1993. Switching regression with selection-bias correction